

REMARKS

I. Status of the Claims and the Rejections

Applicant thanks the examiner for conducting two telephonic interviews, on May 18, 2011 and on July 5, 2011 with the undersigned counsel and also with Rebecca Brown on the most recent interview. In those interviews, the intended meaning of the claim term "steplessly variable" was discussed in detail, and the examiner agreed that the claim amendments now submitted with this response overcome the Section 112 rejections based on the written description requirement as well as the currently cited prior art. Additionally, the Declaration under 37 CFR § 1.132 from the inventor Thomas Lerche, which was inadvertently missing from the last response, was also discussed. The examiner agreed that the evidence contained in the Declaration would likely overcome the Section 112 rejections based on the enablement requirement. Applicant appreciates the examiner's time and willingness to move this application towards allowance.

Claims 11 and 22 were rejected under 35 U.S.C. § 112, first paragraph, for allegedly failing to comply with the written description and enablement requirements. As to the written description requirement, applicant has amended claims 11 and 22 to replace the problematic claim term "variable" with "changeable" in accordance with the agreement reached in the July 5, 2011 interview. Applicant has also submitted a Declaration of the inventor Thomas Lerche under 37 CFR § 1.132 explaining why claims 11 and 22 meet the enablement requirement. Each of these Section 112 rejections is discussed in further detail below.

Substantively, claims 3, 5, 8, 9, 11, and 22 were rejected for alleged obviousness under 35 U.S.C. § 103(a) based on McCallister U.S. Patent No. 2,859,803 ("McCallister") in view of Japanese Patent No. 60126536 ("JP '536"). Claim 10 was rejected for alleged

obviousness under 35 U.S.C. § 103(a) based on McCallister in view of JP '536 and Hutton U.S. Patent Publication No. 2004/0187234 ("Hutton").

Applicant respectfully traverses these rejections. However, applicant has amended independent claims 11 and 22 to further clarify the subject matter regarded as patentable and in accordance with the agreement reached in the July 5, 2011 interview. In view of these amendments and the following remarks, applicant respectfully requests reconsideration and allowance.

II. Claims 11 and 22 comply with the Written Description and Enablement Requirements

The Office Action states that claims 11 and 22 fail to comply with the written description requirement under 35 U.S.C. § 112, first paragraph, because the claims recite that the angle of the air jet directed into the cabin is "steplessly variable." In the July 5, 2011 interview, the examiner clarified that this claim term was being interpreted to cover variability of the angle regardless of temperature changes of the air jet. However, applicant clarified that this claim term refers to the ability of the current invention to change the angle of the air jet without intermediate steps of movement during the rotation of the rotation device (e.g., in proportion to the temperature change sensed). The examiner and applicant agreed that if the angle were recited to be "steplessly changeable" during rotation of the rotation device, this would overcome the written description rejections.

As a result, applicant has now amended independent claims 11 and 22 in accordance with the agreement in the interview. These amendments are fully supported in the specification at page 5, lines 10-20. For at least these reasons, claims 11 and 22 comply with the

written description requirement of Section 112, first paragraph. Applicant respectfully requests that the rejection of claims 11 and 22 based on the written description requirement be withdrawn.

The Office Action also states that the claims 11 and 22 fail to comply with the enablement requirement under 35 U.S.C. § 112, first paragraph, because it is allegedly unclear from the description in the specification how to make or use a single structure to alter both the direction and the impulse of the air jet based on a single temperature sensor (the claims do not specify whether a single structure or multiple structures are used to alter the direction and impulse of the air jet). Applicant disagrees with this assessment in the Office Action because one skilled in the art would understand from the disclosure in the specification how to make and use both a single structure or multiple structures to alter the direction and the impulse of the air jet.

To further explain this position, applicant has attached a declaration of Thomas Lerche ("Lerche Declaration"), the named inventor of the present application, which declares that a person of skill in the art would have been able to make and use the claimed invention based on the specification of the current application. More particularly, Mr. Lerche states that one skilled in the art would be "at least generally aware of the teachings" of prior patents and publications such as those currently of record in the current application when reading the specification of the current application. For examples, Mr. Lerche cites George U.S. Patent No. 4,848,669 ("George") for the teaching of a single mechanism for altering direction and impulse of an air flow, and cites Holyoake U.S. Patent No. 5,556,335 ("Holyoake") for the teaching of multiple mechanisms for altering direction and impulse of an air flow. Lerche Declaration, para. 2.

Consequently, Mr. Lerche concludes that a person skilled in the art would understand the capability of single structures and/or multiple structures to alter the direction and the impulse of an air jet, even if this person were not specifically aware of these particular patents. Lerche Declaration, para. 3. Contrary to the assertion in the "Response to Arguments" section of the Office Action, applicant does not assert that one skilled in the art would need specific prior art references such as George and Holyoake to enable the claimed invention. Based on the Lerche Declaration, applicant asserts that one skilled in the art would have the requisite knowledge to readily understand and be enabled to practice the claimed invention (as both single structure and multiple structures) from just the specification of the current application. The examiner agreed in the interview that this would likely overcome the enablement rejections.

For at least these reasons, the current specification would enable one skilled in the art to make or use the claimed invention. Applicant respectfully asserts that both possibilities for modifying the angle and the impulse of an air jet (by a single structure or multiple structures) are fully enabled as explained by these remarks and the Lerche Declaration. Thus, applicant respectfully requests that the rejection of claims 11 and 22 based on the enablement requirement be withdrawn.

III. Claims 3, 5, 8-11, and 22 are Not Obvious

A. The Claims

Independent claim 22 recites a device for air-conditioning an aircraft cabin including a rotation device, a guide pipe, and a temperature sensor having a temperature-dependent form. The temperature sensor operates to measure the temperature of an air jet

injected into the cabin through the guide pipe, actuate rotation of the rotation device to alter an angle of the air jet with respect to a vertical direction, and alter an impulse of the air jet by actuating a change in the cross-section of an outlet in communication with the guide pipe. The angle of the air jet is steplessly changeable, while the rotation device is rotating, based on a change in form of the temperature sensor. The angle of the air jet changes proportionally to the amount of change in the temperature sensed by the temperature sensor over a range of approximately 9°C-25°C. Claims 8-10 depend from claim 22 and recite additional features, such as a second temperature sensor in claim 10.

Independent claim 11 recites an analogous method for air-conditioning an aircraft cabin. The method includes directing at least one air jet into the cabin with a guide pipe and measuring the temperature of the air jet with a temperature sensor having a temperature-dependent form. The method also includes altering an angle of the air jet with respect to a vertical direction via rotation of a rotation device. The angle of the air jet is steplessly changeable, while the rotation device is rotating, based on the change of form of the temperature sensor and proportional to the amount of change in the temperature sensed by the temperature sensor. An impulse of the air jet is also altered according to the change of form of the temperature sensor by changing a cross-section of an outlet in communication with the guide pipe. Claims 3 and 5 depend from claim 11 and recite additional features, such as increasing the impulse of the air jet and decreasing the angle of the air jet when the temperature of the air jet is increased.

B. The Deficiencies of the Cited Prior Art

McCallister is directed to a seating arrangement for a passenger cabin and discloses directing fresh air into the passenger cabin through fresh air outlets (13) in the ceiling

of the passenger cabin. *See* FIG. 2. However, McCallister fails to disclose measuring the temperature of the air jet, altering the angle of the air jet, or altering the impulse of the air jet. The Office Action instead cites JP '536 for these claimed features, and states that it would have been obvious to modify the air-conditioning device and method of McCallister as taught by JP '536 to arrive at the claimed invention. However, this combination is deficient because the proposed combination does not include every limitation of independent claims 11 and 22.

JP '536 is directed to a ventilation control device for an air conditioner typically used in a building. As shown in FIGS. 1 and 2, the ventilation control device includes an airflow guide plate (2) coupled to a first temperature-sensitive shape memory alloy (7) and a rotary member (4) coupled to a second temperature-sensitive shape memory alloy (10). The first temperature-sensitive shape memory alloy is operable during heating to move the guide plate in an axial direction to increase or decrease a cross-sectional area of an outflow in response to temperature changes. The second temperature-sensitive shape memory alloy is operable during heating to rotate the rotary member and the guide plate to direct the hot air flow in a downward direction, and operable during cooling to rotate the rotary member and the guide plate to direct the cool air flow in a generally horizontal direction. Consequently, JP '536 discloses a device for modifying the flow of conditioned air into a building.

However, the guide plate is not rotated unless the air conditioner is changing operation between heating and cooling the building. In this regard, the second temperature-sensitive shape memory alloy is binary in operation, moving from the generally horizontal air flow position of FIG. 1 to the generally vertical air flow position of FIG. 2 in one movement when the operation mode of the air conditioner changes. As the examiner agreed in the July 5, 2011 interview, JP '536 does not teach stepless changing of the angle of the air jet during rotation

of a rotation device, as recited in claims 11 and 22. The examiner also agreed in that interview that JP '536 also does not teach stepless changing of the angle of the air jet proportional to the change in temperature. As both of these features are now expressly recited in the independent claims, the proposed combination of references is deficient with respect to claims 11 and 22.

Independent claims 11 and 22 are not obvious over McCallister and JP '536 because the proposed combination lacks multiple features currently recited in the claims. Claims 3, 5, and 8-10 depend from one of independent claims 11 and 22, and recite one or more features in combination with the features of claim 11 or 22. For substantially the same reasons set forth with respect to claims 11 and 22, and further because the cited references fail to teach the combination of elements recited in the dependent claims, applicant requests that the rejection of claims 3, 5, 8-11, and 22 be withdrawn.

IV. New Claims 23 and 24

Applicant has added new claims 23 and 24, which depend from independent claims 11 and 22 and are allowable for at least the same reasons provided above for those claims. Each of claims 23 and 24 further recites that the angle of the air jet is altered within a range of 10° to 90° in proportion to the change in temperature sensed by the temperature sensor for the temperature range of approximately 9°C to 25°C. These claims are fully supported at page 5, lines 10-20 of the original specification. As described above, the cited references (McCallister, JP '536, and Hutton) all fail to disclose proportional change of an angle of an air jet based on a temperature change. Thus, none of the cited references discloses proportional change of the angle over a set range. For at least these additional reasons, applicant respectfully requests that claims 23 and 24 be allowed.

V. Conclusion

Based on the amendments to the claims and these remarks, applicant respectfully asserts that all present claims are in condition for allowance, and respectfully requests an allowance without further delay.

Applicant has submitted herewith the fees for the Request for Continued Examination. Applicants believe that no other fees are due for this filing. If any other fee is considered necessary, the Commissioner may treat this response as an authorization to charge Deposit Account 23-3000.

Respectfully submitted,

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